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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,491	02/05/2002	Norikazu Nishiyama	791_183	7267

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EXAMINER

STEIN, STEPHEN J

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/068,491

Applicant(s)

NISHIYAMA ET AL.

Examiner

Stephen J Stein

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 1-7, 12 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/4/03 and 4/17/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group II (claims 8-11) in Applicants' response filed April 22, 2004 is acknowledged. The traversal is on the grounds that claims 1-13 are sufficiently related that a through and complete search for the subject matter of the elected claims would necessarily encompass a through and complete search for the subject matter of the non-elected claims and that therefore, a search and examination of the entire application could be made without serious burden. This is not found persuasive because the examiner who made the restriction requirement has shown that the subject matter of the three groups encompass three different statutory classes of invention each having a different classification. For purposes of the initial requirement of a restriction, a serious burden on the examiner may be prima facie shown if the examiner shows by appropriate explanation either separate classification, separate status in the art, or a different field of search as defined in MPEP § 808.02.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

2. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 9 recites the limitation "A mesoporous silica composite material according to claim 8, wherein said mesoporous silica has a particulate form or a filmy form". This limitation makes the claim indefinite since independent claim 8 recites that the mesoporous silica is

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deposited on a porous substrate, and therefore it is unclear how the mesoporous silica can be in a “particulate form”, if it is already in a “filmy” form (e.g. deposited on a porous substrate).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chaudhari, Karuna et al., *Electron Spin Resonance Investigation on the Location and Reducibility of Zirconium in Mesoporous Zr-MCM-41 Molecular Sieves*, Journal of Physical Chemistry B, Vol. 104, No. 47, November 2000 (Chaudhari et al.) in view of US 6,274,207 (Balkus Jr., et al.).

Chaudhari teaches a zirconium containing mesoporous MCM-41 molecular sieve (zirconium containing mesoporous silica), wherein the Zr element is in the form of Si-O-Zr and at a level of 2 molar percent (see abstract and page 11073). Chauduri further teaches that that the pore volume is from 27 to 31 angstroms (2.7 to 3.1 nm) (page 11068) and the pore volume ranges from 0.51 to 1.05 cc/g (See table 1 on page 11067). Chauduri fails to teach or suggest that the zirconium containing mesoporous silica film is on a porous substrate.

Balkus Jr teaches that high quality molecular sieves made of MCM-41 thin films (mesoporous silica) may conventionally be deposited on a porous substrate (col. 1 and 2.).

Therefore, it would have been obvious to one of ordinary skill in the art at time of the invention to deposit the zirconium containing mesoporous silica disclosed by Chaudhari on to a porous substrate because the Balkus reference discloses that it is conventional do so for the same

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purpose (e.g. molecular sieve). With regard to the claimed alkali resistance, it is expected that the disclosed material would exhibit this property, since it is the same material as that claimed by applicants.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Stein whose telephone number is 572-272-1544. The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 5:00 p.m. If the attempts to reach the examiner are unsuccessful, the examiner's supervisor, Deborah Jones can be reached by dialing 571-272-1535. The official fax number is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

May 16, 2004



Stephen J. Stein
Primary Examiner
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